

Remarks

I. Introduction

This is in response to the Office Action dated March 8, 2006. The Office Action rejected claims 3, 10, 14 and 16 under 35 U.S.C. §112 first paragraph and second paragraph because the term "mod" in those claims is unclear. Claims 1, 2, 4-9, 15, 17 and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,602,375 (Inukai) or U.S. Patent No. 6,433,739 (Soliman). Claims 11-13 are allowed. In response, and in order to correct certain informalities in certain of the claims, Applicants have amended claims 1, 2, 4, 7, 9, 10, 15, 16 and 18. Claims 8 and 17 have been cancelled. Claims 1-7, 9-16 and 18 remain for consideration.

II. Rejections Under 35 U.S.C §112

Claims 3, 10, 14 and 16 were rejected under 35 U.S.C. §112 first paragraph, as failing to comply with the enablement requirement. Claims 3, 10, 14 and 16 were also rejected under 35 U.S.C. §112 second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Both of these §112 rejections are based on the term "mod" as being unclear.

The term "mod", as used in claims 3, 10, 14 and 16, and as used in the equation in paragraph [0039] of the application, has a clear, well known and defined meaning to one of ordinary skill in the art. As is well known, a modulo is an arithmetic operation whose result is the remainder of a division operation. It is often abbreviated as "mod", and is widely available as a standard function in different software packages and programming languages. The following references are evidence of this definition and abbreviation of this well known term:

- *Microsoft Press, Computer Dictionary, Third Edition, 1997 – modulo n.* An arithmetic operation whose result is the remainder of a division operation.

- *Wikipedia, the free encyclopedia,*
[*http://en.wikipedia.org/wiki/Modulo_\(computing\)*](http://en.wikipedia.org/wiki/Modulo_(computing)) - In computing, the **modulo** operation finds the remainder of division of one number by another. ... Some calculators have a mod() function, and many programming languages have a mod() function.
- *Microsoft Excel 2003 Help* - **MOD** returns the remainder after number is divided by divisor. **MOD (number,divisor)**.

As can be seen the term modulo, as well as the abbreviation MOD, is well known in the art for representing an arithmetic operation whose result is the remainder of a division operation. The operation is so well known, and in such widespread use, that even the basic well known spreadsheet program, Microsoft Excel 2003, has a built in function “MOD” for returning the remainder of a number divided by a divisor.

The mere fact that “MOD” is not specifically defined in the specification does not render the claim indefinite under §112. In Bancorp Servs., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1372 (Fed. Cir. 2004), the court held that a claim limitation that was not specifically defined in the specification was not indefinite because the claim limitation was discernible. In the present case, the claim limitation MOD is clearly discernible by one of ordinary skill in the art.

III. Rejections Under 35 U.S.C §102

Claims 1, 2, 4-9, 15, 17 and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,602,375 (Inukai) or U.S. Patent No. 6,433,739 (Soliman).

The present invention is directed to solving the solution latency problem, as described in the Background of the Invention section of the present application. This problem is present when generation of a GPS position must be synchronized with another non-satellite signal. The GPS position is generated at a time epoch, which is controlled by a local clock in the GPS receiver. The problem arises when this local clock cannot be used to synchronize the non-

satellite signal. For example, the non-satellite signal may be a laser beam generated by a rotating laser transmitter and used to improve the position calculation of the GPS receiver. The rotating laser transmitter rotates at a certain period, which cannot be controlled by the local clock in the GPS receiver. As such, the GPS position generation is not synchronized with receipt of the laser beam, and the solution latency problem results.

The present invention is directed to a solution to this problem. In order to expedite prosecution of this application, independent claims 1, 7 and 15 have been amended to particularly claim an embodiment of the invention in which the non-satellite signal is a laser beam. Applicants do not admit that the cited art anticipates the original claims, and Applicants reserve the right to present the original claims in a continuation application. The invention as claimed in these amended independent claims 1, 7 and 15 corrects the local clock signal of the GPS receiver using the time of receipt of the laser beam signal at the GPS receiver. This allows for a synchronization of the time of receipt of the laser beam with the time epoch at which the GPS position is determined. These aspects of the invention, as now set forth in the independent claims, are neither shown nor suggested in the cited art.

The Inukai reference discloses an on-board satellite clock correction system wherein phase errors between the satellite clock and a ground-based clock are determined and a clock correction value is sent to the satellite. Inukai discloses the use of a polynomial approximation of cumulative phase error to estimate the clock drift in the current correction interval, and the correction value sent to the satellite is computed from the predicted drift in the next correction interval.

The Soliman reference relates to locating the position of a wireless communication device in a code division multiple access system. Soliman discloses a method and apparatus for determining any offset between the timing of a communication base station and the timing of a GPS constellation using a remote synchronization station at which the timing of a base station can be measured and compared with known timing to determine an offset.

Neither of the cited references disclose nor suggest the invention as presently claimed. With respect to independent claim 1, that claim now claims a method for synchronizing a satellite positioning device having a local clock defining an epoch period. A clock correction is calculated based at least in part on the time of receipt of a laser beam signal, and the calculated clock correction is applied to the local clock, which defines the epoch period. These claim limitations are neither shown nor suggested in either of the cited references.

Independent claim 7 claims a satellite positioning device comprising a local clock and a satellite signal processor that processes satellite signals to generate position information and where the timing epochs of the processing are based on the local clock. Further, the device comprises a time difference module for generating a clock correction signal based at least in part on the time of receipt of laser beam signals.

Similarly, independent claim 15 claims a satellite positioning device comprising a local clock defining an epoch period and means for calculating a clock correction based at least in part on the time of receipt of a laser beam generated by a rotating laser transmitter. The device further comprises means for applying that clock correction to the local clock.

All of the amended independent claims are allowable. Neither of the cited references discloses a satellite positioning device for correcting a local clock that defines an epoch period using the time of receipt of a laser beam. Applicants note that original dependent claims 4, 8 (now cancelled) and 17 (now cancelled) were directed to the aspect of the invention where the non-satellite signal was a laser beam. As discussed above, that aspect of the invention is now claimed in amended independent claims 1, 7 and 15. It is noted that the Office Action does not cite any portion of the cited references for disclosing this aspect of the invention. Moreover, nowhere does the Office Action even address the limitations of these claims.

For the reasons discussed above, all independent claims are allowable over the cited art. Allowance of all independent claims is requested.

All remaining dependent claims are dependent upon an allowable independent claim and are therefore also allowable. These dependent claims are also allowable because they add additional allowable subject matter as follows.

Dependent claim 2, as amended, is directed to repeating steps a) – c) of claim 1 each time a laser beam signal is received. The Office Action failed to address the repetition of steps a) – c). Applicants assert that this claim is allowable over the cited art. If the Examiner persists in the rejection of this claim, Applicants request that the Examiner cite specific portions of the cited art that disclose the claim limitations.

Dependent claims 3, 10, 14 and 16 are directed to a particular technique for calculating a clock correction. These claims were rejected under 35 U.S.C. §112. However, as described above in section II, these claims are allowable. Since the cited references do not show the particular technique as claimed in these claims, these claims are allowable over the cited art.

Dependent claim 4 claims that the laser beam signal is generated by a rotating laser transmitter, and claim 5 further claims that the period of the rotating laser is substantially equal to the epoch period. The Office Action failed to address the limitations of these claims. Applicants assert that these claims are allowable over the cited art. If the Examiner persists in the rejection of these claims, Applicants request that the Examiner cite specific portions of the cited art that disclose the claim limitations.

Dependent claims 6 and 18 claim that the laser beam has an N shape. The Office Action failed to address the limitations of these claims. Applicants assert that these claims are allowable over the cited art. If the Examiner persists in the rejection of these claims, Applicants request that the Examiner cite specific portions of the cited art that disclose the claim limitations.

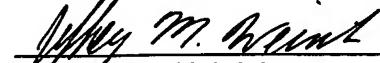
IV. No New Matter has Been Added

No new matter has been added by the claim amendments. The amendments are supported at least by the originally filed claims.

V. Conclusion

For the reasons discussed above, all pending claims are allowable over the cited art. Reconsideration and allowance of all claims is respectfully requested.

Respectfully submitted,



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